Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL QUALITY MEASURES CLEARINGHOUSE

General

Title

Diagnostic imaging: percentage of final reports for abdominal imaging studies for asymptomatic patients aged 18 years and older with one or more of the following noted incidentally with follow-up imaging recommended: liver lesion less than or equal to 0.5 cm; cystic kidney lesion less than 1.0 cm; adrenal lesion less than or equal to 1.0 cm.

Source(s)

American College of Radiology (ACR), American Medical Association-convened Physician Consortium for Performance ImprovementÂ® (PCPIÂ®), National Committee for Quality Assurance (NCQA). Diagnostic imaging performance measurement set. Reston (VA): American College of Radiology (ACR); 2015 Feb. 58 p. [89 references]

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Process

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of final reports for abdominal imaging studies for asymptomatic patients aged 18 years and older with one or more of the following noted incidentally with follow-up imaging recommended:

Liver lesion less than or equal to 0.5 cm
Cystic kidney lesion less than 1.0 cm
Adrenal lesion less than or equal to 1.0 cm

Rationale

Incidental kidney, liver, and adrenal lesions are commonly found during abdominal imaging studies, with most of the findings being benign (Pickhardt et al., 2008; Yee et al., 2005; Song, Chaudhry, & Mayo-Smith, 2009; Silverman et al., 2008). Given the low rate of malignancy, unnecessary follow-up procedures are costly and present a significant burden to patients (Ahmed et al., 2010; Casarella, 2002). To avoid excessive testing and costs, follow-up is not recommended for these small lesions.

The following evidence statements are quoted verbatim from the referenced clinical guidelines and other references:

The Incidental Findings Committee recommends the following for low-dose unenhanced computed tomography (CT) examinations for liver masses:

> In low-risk and average-risk patients, sharply marginated, low-attenuation (less than 20 Hounsfield units [HU]) solitary or multiple masses may typically not need further evaluation.
> Small, solitary masses less than or equal to 1.5 cm that are not cystic and are discovered on unenhanced or standard-dose or low-dose scans in low-risk and average-risk patients may typically not need further evaluation (Berland et al., 2010).

The Incidental Findings Committee recommends the following for low-dose unenhanced CT examination for renal masses:

> It may be appropriate to interpret incidental renal masses as simple cysts unless suspicious features noted (earlier within the document) are convincingly present. The argument for adopting this approach is even stronger when considering small (less than 3 cm) masses, particularly those less than 1 cm. The smaller the mass (even when solid), the more likely it is benign. Furthermore, masses less than 1 cm may not be able to be fully characterized, even if renal mass-protocol CT or magnetic resonance imaging (MRI) was performed. Although this represents a consensus opinion of the committee, no data are yet available to support this approach.
> If a renal mass is small (less than 3 cm), homogenous, any greater than 70 HU, recent data suggest that the mass can be confidently diagnosed as a benign hyperattentuating cyst (Bosniak category II) (Desser & Kayma, 2008).

The Incidental Findings Committee recommends the following for low-dose unenhanced CT examinations for adrenal masses:

> Because attenuation should not be altered by a low-dose technique, if the mean attenuation of an adrenal mass is less than or equal to 10 HU on a low-dose CT examination, one may conclude that the adrenal mass is likely to be a benign adenoma.
> If a lesion is greater than 10 HU and 1 to 4 cm in an asymptomatic patient without cancer, 1-year follow-up CT or MRI may be considered, if no prior studies for comparison are available. Prior examinations that show stability for greater than or equal to 1 year can eliminate the need for further workup, so every effort should be made to obtain prior CT or MRI examinations in these situations.
> For adrenal masses greater than 4 cm, dedicated adrenal MRI or CT should be considered to further characterize (Desser & Kayma, 2008).

Evidence for Rationale

Ahmed S, Horton KM, Jeffrey RB, Sheth S, Fishman EK. Incidental thyroid nodules on chest CT: Review of the literature and management suggestions. AJR Am J Roentgenol. 2010 Nov;195(5):1066-71. PubMed

American College of Radiology (ACR), American Medical Association-convened Physician Consortium for Performance ImprovementÂ® (PCPIÂ®), National Committee for Quality Assurance (NCQA). Diagnostic imaging performance measurement set. Reston (VA): American College of Radiology (ACR); 2015 Feb. 58 p. [89 references]

Berland LL, Silverman SG, Gore RM, Mayo-Smith WW, Megibow AJ, Yee J, Brink JA, Baker ME, Federle MP, Foley WD, Francis IR, Herts BR, Israel GM, Krinsky G, Platt JF, Shuman WP, Taylor AJ. Managing incidental findings on abdominal CT: white paper of the ACR incidental findings committee. J Am Coll Radiol. 2010 Oct;7(10):754-73. PubMed

Casarella WJ. A patient's viewpoint on a current controversy. Radiology. 2002 Sep;224(3):927.

Desser TS, Kamaya A. Ultrasound of thyroid nodules. Neuroimaging Clin N Am. 2008 Aug;18(3):463-78, vii. PubMed

Pickhardt PJ, Hanson ME, Vanness DJ, Lo JY, Kim DH, Taylor AJ, Winter TC, Hinshaw JL. Unsuspected extracolonic findings at screening CT colonography: clinical and economic impact. Radiology. 2008 Oct;249(1):151-9. PubMed

Silverman SG, Israel GM, Herts BR, Richie JP. Management of the incidental renal mass. Radiology. 2008 Oct;249(1):16-31. PubMed

Song JH, Chaudhry FS, Mayo-Smith WW. The incidental adrenal mass on CT: prevalence of adrenal disease in 1,049 consecutive adrenal masses in patients with no known malignancy. AJR Am J Roentgenol. 2008 May;190(5):1163-8. PubMed

Yee J, Kumar NN, Godara S, Casamina JA, Hom R, Galdino G, Dell P, Liu D. Extracolonic abnormalities discovered incidentally at CT colonography in a male population. Radiology. 2005;236(2):519-26.

Primary Health Components

Incidental abdominal lesions; abdominal imaging studies; liver lesion; cystic kidney lesion; adrenal lesion; follow-up imaging

Denominator Description

All final reports for abdominal imaging studies for patients aged 18 years and older with one or more of the following noted:

- Liver lesion less than or equal to 0.5 cm
- Cystic kidney lesion less than 1.0 cm
- Adrenal lesion less than or equal to 1.0 cm

See the related "Denominator Inclusions/Exclusions" field.

Numerator Description

Final reports for abdominal imaging studies with follow-up imaging recommended

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and

organizational sciences

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

Importance of Topic
As imaging technology continues to advance, the United States healthcare system has seen an increase in both the type and frequency of imaging studies being performed. The increase in utilization of imaging studies is accompanied by a corresponding increase in cost and exposure to radiation for both patients and healthcare professionals.

> From 1980 to 2006, the number of radiologic procedures performed in the United States showed a ten-fold increase while the annual per-capita effective dose from radiologic and nuclear medicine procedures increased by 600% (Mettler et al., 2009).
> From 1996 to 2010, the number of computerized tomographic (CT) examinations tripled, while the number of ultrasounds nearly doubled (Smith-Bindman et al., 2012).
> From 1996 to 2010, advanced diagnostic imaging (i.e., CT, magnetic resonance imaging [MRI], nuclear medicine, and ultrasound) accounted for approximately 35% of all imaging studies (Smith-Bindman et al., 2012).
> From 1980 to 2006, the proportion of radiation exposure that is attributable to medical sources increased from 17% to 53% (Mettler et al., 2009).
> In 2006, while CT scans only accounted for approximately 17% of all radiologic procedures performed in the United States, they accounted for over 65% of the total effective radiation dose from radiologic procedures (Mettler et al., 2009).
> In 2006, the estimated per-capita effective radiation dose for radiologic procedures in the United States was nearly 20% higher than the average for other well-developed countries (Mettler et al., 2009).

Diagnostic imaging was prioritized as a topic area for measure development due to a high level of utilization, rising costs, and the need for measures to help promote appropriate use of imaging and improve outcomes.

Opportunity for Improvement
There is considerable variability among radiologists in the management of incidental findings. A 2011 survey conducted by Johnson et al. found significant variability in how radiologists report and manage incidental findings. In a more recent survey (Berland et al., 2014) of members of the American College of Radiology, 38% of respondents were aware of the guidance around incidental findings. Among respondents who were aware of the guidance, 89% replied that they were applying the recommendations in their practice.

Evidence for Additional Information Supporting Need for the Measure

American College of Radiology (ACR), American Medical Association-convened Physician Consortium for Performance ImprovementÂ® (PCPIÂ®), National Committee for Quality Assurance (NCQA). Diagnostic imaging performance measurement set. Reston (VA): American College of Radiology (ACR); 2015 Feb. 58 p. [89 references]

Berland LL, Silverman SG, Megibow AJ, Mayo-Smith WW. ACR Members' Response to JACR White Paper on the Management of Incidental Abdominal CT Findings. J Am Coll Radiol. 2014 Jan;11(1):30-5. PubMed

Johnson PT, Horton KM, Megibow AJ, Jeffrey RB, Fishman EK. Common incidental findings on MDCT:

survey of radiologist recommendations for patient management. J Am Coll Radiol. 2011 Nov;8(11):762-7. PubMed

Mettler FA, Bhargavan M, Faulkner K, Gilley DB, Gray JE, Ibbott GS, Lipoti JA, Mahesh M, McCrohan JL, Stabin MG, Thomadsen BR, Yoshizumi TT. Radiologic and nuclear medicine studies in the United States and worldwide: frequency, radiation dose, and comparison with other radiation sources--1950-2007. Radiology. 2009 Nov;253(2):520-31. PubMed

Smith-Bindman R, Miglioretti DL, Johnson E, Lee C, Feigelson HS, Flynn M, Greenlee RT, Kruger RL, Hornbrook MC, Roblin D, Solberg LI, Vanneman N, Weinmann S, Williams AE. Use of diagnostic imaging studies and associated radiation exposure for patients enrolled in large integrated health care systems, 1996-2010. JAMA. 2012 Jun 13;307(22):2400-9. PubMed

Extent of Measure Testing

Some of the measures in this set are being made available without any prior testing. The Physician Consortium for Performance Improvement (PCPI) recognizes the importance of testing all of its measures and encourages testing of the diagnostic imaging measurement set for feasibility and reliability by organizations or individuals positioned to do so. The *Measure Testing Protocol for PCPI Measures* was approved by the PCPI in 2010 and is available on the PCPI Web site (see Position Papers at www.physicianconsortium.org); interested parties are encouraged to review this document and to contact PCPI staff. The PCPI will welcome any opportunity to promote the initial testing of these measures and to ensure that any results available from testing are used to refine the measures before implementation.

Evidence for Extent of Measure Testing

American College of Radiology (ACR), American Medical Association-convened Physician Consortium for Performance ImprovementÂ® (PCPIÂ®), National Committee for Quality Assurance (NCQA). Diagnostic imaging performance measurement set. Reston (VA): American College of Radiology (ACR); 2015 Feb. 58 p. [89 references]

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Ambulatory/Office-based Care

Ambulatory Procedure/Imaging Center

Hospital Inpatient

Hospital Outpatient

Long-term Care Facilities - Other

Skilled Nursing Facilities/Nursing Homes

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Individual Clinicians or Public Health Professionals

Statement of Acceptable Minimum Sample Size

Does not apply to this measure

Target Population Age

Age greater than or equal to 18 years

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Health and Well-being of Communities
Person- and Family-centered Care
Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Data Collection for the Measure

Case Finding Period

Unspecified

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Clinical Condition

Diagnostic Evaluation

Patient/Individual (Consumer) Characteristic

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions
All final reports for abdominal imaging studies for patients aged 18 years and older with one or more of the following noted:

- Liver lesion less than or equal to 0.5 cm
- Cystic kidney lesion less than 1.0 cm
- Adrenal lesion less than or equal to 1.0 cm

Exclusions
Unspecified

Exceptions
Documentation of medical reason(s) that follow-up imaging is indicated (e.g., patient has a known malignancy that can metastasize, other medical reason[s] [such as fever in an immunocompromised patient])

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions
Final reports for abdominal imaging studies with follow-up imaging recommended

Exclusions
Unspecified

Numerator Search Strategy

Fixed time period or point in time

Data Source

Electronic health/medical record

Imaging data

Paper medical record

Registry data

Type of Health State

Does not apply to this measure

Instruments Used and/or Associated with the Measure

Unspecified

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a lower score

Allowance for Patient or Population Factors

not defined yet

Standard of Comparison

not defined yet

Identifying Information

Original Title

Measure #12: appropriate follow-up imaging for incidental abdominal lesions.

Measure Collection Name

Diagnostic Imaging Performance Measurement Set

Submitter

American College of Radiology - Medical Specialty Society

Developer

American College of Radiology - Medical Specialty Society

National Committee for Quality Assurance - Health Care Accreditation Organization

Physician Consortium for Performance ImprovementÂ® - Clinical Specialty Collaboration

Funding Source(s)

Unspecified

Composition of the Group that Developed the Measure

Diagnostic Imaging Measure Development Work Group Members

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Financial Disclosures/Other Potential Conflicts of Interest

None of the members of the Diagnostic Imaging Work Group had any disqualifying material interest under the Physician Consortium for Performance Improvement (PCPI) Conflict of Interest Policy.

Measure Initiative(s)

Physician Quality Reporting System

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2015 Feb

Measure Maintenance

This measure is reviewed and updated every 3 years.

Date of Next Anticipated Revision

2018

Measure Status

This is the current release of the measure.

Measure Availability

Source available from the American College of Radiology (ACR) Web site .

For more information, contact ACR at 1891 Preston White Drive, Reston, VA 20191; Phone: 703-648-8900; E-mail: info@acr.org; Web site: www.acr.org .

NQMC Status

This NQMC summary was completed by ECRI Institute on October 13, 2015. The information was verified by the measure developer on November 19, 2015.

Copyright Statement

This NQMC summary is based on the original measure, which is subject to the measure developer's copyright restrictions.

Production

Source(s)

American College of Radiology (ACR), American Medical Association-convened Physician Consortium for Performance ImprovementÂ® (PCPIÂ®), National Committee for Quality Assurance (NCQA). Diagnostic imaging performance measurement set. Reston (VA): American College of Radiology (ACR); 2015 Feb. 58 p. [89 references]

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